

What is claimed is:

- 1 1. A method for extinguishing a fire occurring in a
- 2 petroleum or petroleum-based product and caused by vapors
- 3 released by said product, comprising applying to said
- 4 fire and said product a composition comprising:
  - 5 (a) a nonionic primary surfactant comprising an
  - 6 ethoxylated sorbitol oleate;
  - 7 (b) a nonionic secondary surfactant selected from
  - 8 the group consisting of linear ethoxylated secondary
  - 9 alcohols, polyoxyethylene ethers, ethoxylated sorbitan
  - 10 monolaurates, ethoxylated fatty acid amides and
  - 11 ethoxylated fatty acids and containing about 7 moles to
  - 12 about 26 moles of ethylene oxide and comprising from
  - 13 about 20 to about 36 weight percent of said composition,
  - 14 and wherein said nonionic secondary surfactant is capable
  - 15 of stabilizing and solubilizing said nonionic primary
  - 16 surfactant such that said composition has a
  - 17 hydrophilic/lipophilic balance between about 12.0 and
  - 18 about 13.5; and
  - 19 (c) water;
- 20 wherein said composition arrests said vapors released by
- 21 the product, thereby extinguishing the fire.

22 2. A method according to claim 1, wherein the product  
23 is spilled petroleum oil and/or fuel.

1 3. A method according to claim 1, wherein the primary  
2 surfactant is ethoxylated sorbitol septaoleate.

1 4. A method according to claim 1, wherein the secondary  
2 surfactant has a hydrophilic/lipophilic balance of from  
3 about 10 to about 17.

1 5. A method according to claim 1, wherein the  
2 composition further comprises an emulsion-stabilizing  
3 agent.

1 6. A method according to claim 1, wherein the  
2 composition further comprises a polyethylene glycol  
3 component having a molecular weight of from about 200 to  
4 about 400.

1 7. A method for cleaning a surface contaminated with  
2 petroleum and/or petroleum-based product, comprising  
3 applying to said surface a composition comprising:

4 (a) a nonionic primary surfactant comprising an  
5 ethoxylated sorbitol oleate;

6 (b) a nonionic secondary surfactant selected from the  
7 group consisting of linear ethoxylated secondary  
8 alcohols, polyoxyethylene ethers, ethoxylated sorbitan  
9 monolaurates, ethoxylated fatty acid amides and

10 ethoxylated fatty acids and containing about 7 moles to  
11 about 26 moles of ethylene oxide and comprising from  
12 about 20 to about 36 weight percent of said composition,  
13 and wherein said nonionic secondary surfactant is capable  
14 of stabilizing and solubilizing said nonionic primary  
15 surfactant such that said composition has a  
16 hydrophilic/lipophilic balance between about 12.0 and  
17 about 13.5; and  
18 (c) water.

1 8. A method according to claim 7, wherein the primary  
2 surfactant is ethoxylated sorbitol septaoleate.

1 9. A method according to claim 7, wherein the secondary  
2 surfactant has a hydrophilic/lipophilic balance of from  
3 about 10 to about 17.

1 10. A method according to claim 7, wherein the  
2 composition further comprises an emulsion-stabilizing  
3 agent.

1 11. A method according to claim 7, wherein the  
2 composition further comprises a polyethylene glycol  
3 component having a molecular weight of from about 200 to  
4 about 400.

1 12. A method according to claim 7, wherein the surface  
2 is selected from the group consisting of airport runways,

3 rail cars, tanker trucks, sea-going tankers, storage  
4 tanks, automobile fuel tanks, machine tool parts, track  
5 beds, railway system switches, and meat packing and  
6 poultry processing plants.

1 13. A method according to claim 7, wherein the surface  
2 is a body surface of a wildlife member.

1 14. A method according to claim 13, wherein the wildlife  
2 member is a bird.

1 15. A method for accelerating biodegradation rate of a  
2 petroleum or petroleum-based product, comprising applying  
3 to said product a composition comprising:

4 (a) a nonionic primary surfactant comprising an  
5 ethoxylated sorbitol oleate;

6 (b) a nonionic secondary surfactant selected from  
7 the group consisting of linear ethoxylated secondary  
8 alcohols, polyoxyethylene ethers, ethoxylated sorbitan  
9 monolaurates, ethoxylated fatty acid amides, and  
10 ethoxylated fatty acids and containing about 7 moles to  
11 about 26 moles of ethylene oxide and comprising from  
12 about 20 to about 36 weight percent of said composition,  
13 and wherein said nonionic secondary surfactant is capable  
14 of stabilizing and solubilizing said nonionic primary  
15 surfactant such that said composition has a

16 hydrophilic/lipophilic balance between about 12.0 and  
17 about 13.5; and  
18 (c) water.

1 16. A method according to claim 15, wherein said  
2 petroleum or petroleum-based product is disposed in a  
3 sewage system.

1 17. A method according to claim 15, wherein the primary  
2 surfactant is ethoxylated sorbitol septaoleate.

1 18. A method according to claim 15, wherein the  
2 secondary surfactant has a hydrophilic/lipophilic balance  
3 of from about 10 to about 17.

1 19. A method according to claim 15, wherein the  
2 composition further comprises an emulsion-stabilizing  
3 agent.

1 20. A method according to claim 15, wherein the  
2 composition further comprises a polyethylene glycol  
3 component having a molecular weight of from about 200 to  
4 about 400.

1 21. A method for suppressing production of methane  
2 and/or ammonia vapors by a petroleum or petroleum-based  
3 product or other material undergoing degradation or decay  
4 and releasing methane and/or ammonia vapors, comprising

5 applying to said product or material a composition  
6 comprising:

7 (a) a nonionic primary surfactant comprising an  
8 ethoxylated sorbitol oleate;

9 (b) a nonionic secondary surfactant selected from  
10 the group consisting of linear ethoxylated secondary  
11 alcohols, polyoxyethylene ethers, ethoxylated sorbitan  
12 monolaurates, ethoxylated fatty acid amides and  
13 ethoxylated fatty acids and containing about 7 moles to  
14 about 26 moles of ethylene oxide and comprising from  
15 about 20 to about 36 weight percent of said composition,  
16 and wherein said nonionic secondary surfactant is capable  
17 of stabilizing and solubilizing said nonionic primary  
18 surfactant such that said composition has a  
19 hydrophilic/lipophilic balance between about 12.0 and  
20 about 13.5; and

21 (c) water.

1 22. A method according to claim 21, wherein the product  
2 or material is a spilled petroleum or petroleum-based  
3 product.

1 23. A method according to claim 21, wherein the material  
2 is compost.

1 24. A method according to claim 21, wherein the product  
2 or material is disposed in a landfill.

1 25. A method according to claim 21, wherein the primary  
2 surfactant is ethoxylated sorbitol septaoleate.

1 26. A method according to claim 21, wherein the  
2 secondary surfactant has a hydrophilic/lipophilic balance  
3 of from about 10 to about 17.

1 27. A method according to claim 21, wherein the  
2 composition further comprises an emulsion-stabilizing  
3 agent.

1 28. A method according to claim 21, wherein the  
2 composition further comprises a polyethylene glycol  
3 component having a molecular weight of from about 200 to  
4 about 400.